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EXAMINER

WALKER, KEITH D

ART UNIT PAPER NUMBER

1745

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,544

Applicant(s)

YUH ET AL.

Examiner

Keith Walker

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-22 and 24-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-22 and 24-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

1. Claims 1 & 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Starting at lines 5 & 11 respectively, the limitation "planer body member, said sections within said planer body member....to said compliant member," is indefinite since the "said sections" are not within the plane of the planer body since they have been extended out of the planer body. Suggested language might read, "...planer body member, and the outwardly extending sections of the planer body member impart compliance to said compliant member,".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 & 12-17 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4,604,331 (Louis).

Regarding claims 1 & 3, Louis describes a separator plate for a fuel cell with sealing flanges formed by folding the edges of the plate back on themselves to form a channel (Abstract). It is well known in the art, and by the applicant's specification that

Art Unit: 1745

the sealing flange is the wet seal area. Louis further shows a compliant member located in the wet seal area (Fig. 6) with a body member (53) and a section extending outward of the plane of the body member (51).

Regarding claims 4 & 13, again figure 6 shows the flat body member (53) with one side of the section is attached to the body member at point (52)

Regarding claims 12, the sections of the compliant members are arranged in rows extending the length and width of the body members (Fig. 1 & 6, Col. 4, ll. 35-43).

Regarding claims 14, 15, & 16, one side of the section extends along the length and width of the body member (Fig. 6, Col. 4, ll. 35-43).

Regarding claim 17, the rows of sections in the anode and cathode wet seal area are offset from each other though the length of the body member (Fig. 1 & 6, Col. 4, ll. 35-43).

2. Claims 1, 12-17 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,902,692 (Batawi).

Regarding claim 1, Batawi teaches a compliant member comprising a planer body member having sections extending outwardly of the plane of the body member (Fig. 3, 3: 48-51).

Regarding claims 12-17, the sections are arranged in rows such that one side is attached to the body member. One side of each section extends along one of the length and width of the body member and the rows of sections are offset from each other in the length of the body member (Fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-9, & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,604,331 (Louis) in view of US Publication 2002/0022382 (Franklin).

The teachings of Louis, as discussed above, are incorporated herein.

Regarding claim 6, 8, & 9, Louis teaches the use of a spring as the compliant member (Col. 4, Ln. 56). Where the angle of the spring (50) in figure 6 would be reduced if pressure is applied and such that with enough pressure, the section (52) would lie in the same plane as the body member (53).

Regarding claim 11, Louis further discusses the compliant member being rectangular (Col. 4, Ln. 47).

Louis doesn't directly teach the one side of each of said sections being on the same side of that section as the side that each other one side is on its respective section (claim 5). Nor does he speak to the distance or angle of the body members (claim 7).

Regarding claim 5, Franklin teaches the use of independently acting springs [0100] that are all attached on the same side (Fig. 9L).

The motivation to use the independent springs of Franklin allows each spring to act independently from the adjacent spring of the array and compensate for any variation in the fabrication or assembly of the cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the spring of Louis with the independent spring assembly of Franklin to compensate for any variation in the fabrication or assembly of the cell, further improving the electrical contact within the cell.

Regarding claim 7, it is considered to be obvious to one skilled in the art at the time the invention was made to fabricate a spring within the instant range for the purpose of manufacturing consistency. If the angle is too large, then the spring could be bent backwards or fold on itself as the fuel cell is assembled. If the angle is too small, then the mere functionality as a spring is lost. As for the length of the sections, it is held that a modification of size in a component is an obvious matter of design choice. A shorter length sustains more force before full compression, while a longer length requires less force but has a larger range of motion. A change in size is generally recognized as being within the level of ordinary skill in the art. (*In re Rose*, 105 USPQ 237). No apparent criticality is given to the instant ranges.

4. Claims 18- 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louis in view of Franklin and US Patent 4,689,280 (Gionfriddo).

The teachings of Louis and Franklin, as described above are incorporated herein.

Claim 18, Louis teaches a compliant member with a section extending outwardly (see claim 1); Claim 19, a wet seal area defined by edges folded over on itself (claim 1 & 3); Claim 23, a body member configured to fit within the wet seal area (claim 2); Claim 24, where one side of the section is joined to a flat body member (claim 4); Claim 26, the body member is a spring (claim 6); Claim 28 & 29, the angle of the spring is reduced

Art Unit: 1745

as pressure is applied and further the section lies in the same plane as the body member (claim 8 & 9); Claim 31, the body member and section is rectangular (claim 11); Claim 32, sections arranged in rows (claim 12); Claim 33, one side of section is attached to the body member (claim 13); Claim 34 – 36, one side of section extends along length and width of body member (claim 14-16); Claim 37, rows of sections are offset (claim 17). Claim 22, the further compliant member of instant claim, would be all the same features of Louis' compliant member, but for the wet seal area (30) on the opposite side of the separator plate as shown in figure 4.

Louis doesn't speak directly to the fuel cell having a current collector extending into the wet seal area (claim 18), the active area between the flanges (claim 20), the use of a cathode and anode (claim 21), the one side of each of said sections on the same side of that section (claim 25), or the length and angle of the sections from the body member (claim 27).

Regarding claims 18, 20, & 21, Gionfriddo teaches the use of a current collector (56) that extends into the sealing flange (54) in figure 2. Also shown in figure 1 is the assembly of an anode (34) and a cathode (38) that is placed in the active area, as known by those skilled in the art.

The motivation to apply the current collector, anode, cathode assembly with the sealing features of Louis and Franklin's separator plate is to have a complete fuel cell with improved sealing features.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the assembly of Gionfriddo with the sealing

separator plate to have a fuel cell that has an improved electrical contact system thereby reducing the internal resistance due to shrinking electrodes.

Regarding claim 25, Franklin teaches the use of independently acting springs [0100] that are all attached on the same side (Fig. 9L).

The motivation to use the independent springs of Franklin allows each spring to act independently from the adjacent spring of the array and compensate for any variation in the fabrication or assembly of the cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the spring of Louis with the independent spring assembly of Franklin to compensate for any variation in the fabrication or assembly of the cell, further improving the electrical contact within the cell.

Regarding claim 27, it is considered to be obvious to one skilled in the art at the time the invention was made to fabricate a spring within the instant range for the purpose of manufacturing consistency. If the angle is too large, then the spring could be bent backwards or fold on itself as the fuel cell is assembled. If the angle is too small, then the mere functionality as a spring is lost. As for the length of the sections, it is held that a modification of size in a component is an obvious matter of design choice. A shorter length sustains more force before full compression, while a longer length requires less force but has a larger range of motion. A change in size is generally recognized as being within the level of ordinary skill in the art. (*In re Rose*, 105 USPQ 237). No apparent criticality is given to the instant ranges.

Response to Arguments

Applicant's arguments filed August 19, 2005 have been fully considered but they are not persuasive.

5. Applicant argues that the Louis teaches a continuous channel shaped reinforcing member and not a section extending outward of the plane of the body member. The compliant member is made of both the foot part (53) and the top section (51). The foot part (53) is a planer body member, defining a plane, and the foot part lies within that plane. Top section (51) is a part of the planer body member and extends outward from the plane created by the foot part (53) and is a section no longer within the plane of the foot part. If pressure were exerted on the top part, then it would lie in the same plane as the foot part (planer body member) and therefore be within the planer body member. Before the top section (outward extending section) is extended outward of the plane of the body member it was within the planer body member. In a manner commiserate with applicant's limitations, when the top section is created and extended outward of the body member plane, it no longer lies within the plane until pressure is exerted on it in such a manner that it is pushed back within the body member plane.

6. Applicant argues Batawi's compliant member does not teach or suggest the use of the plate structure as defining a wet seal, being arrangeable in a wet seal or configured to be fit in a wet seal. This is seen as a recitation of the intended use of the claimed invention and must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it

meets the claim. The tongues (51) created in the plate structure inherently have compliance to the plate structure creating a compliant member.

7. Applicant argues Franklin fails to teach the use of the compliant member in the wet seal area and the springs do not conform to the limitations of a planer body with sections extending outwardly from the planer body.

8. In response to applicant's argument that the springs of Franklin are not used in a wet seal area, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art (MPEP 2113). Furthermore, Louis teaches the use of a spring in the wet seal area, while Franklin teaches the use of individual springs to allow the springs to act independent of each other so a constant force can be applied across the surface by compensating for any variations that may occur. So in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As stated above, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the spring of Louis with the

independent spring assembly of Franklin to compensate for any variation in the fabrication or assembly of the cell, further improving the electrical contact within the cell.

The springs of Franklin have a planer body with a section extending from the planer body (Fig. 9), as claimed by applicant.

9. Applicant argues Gionfriddo does not teach a compliant member comprising a planar body member having sections extending outwardly of the plane. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Gionfriddo patent teaches the limitations of a fuel cell having an anode and cathode and a current collector extending into the sealing flange, as stated in claims 18-37. While alone Gionfriddo does not teach the compliant member comprising a planar body member, combined with the teachings of Louis and Franklin, as discussed above, the limitations as presented in claims 18-37 are met.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KW


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER